

DATA SHEET

# MVD2555

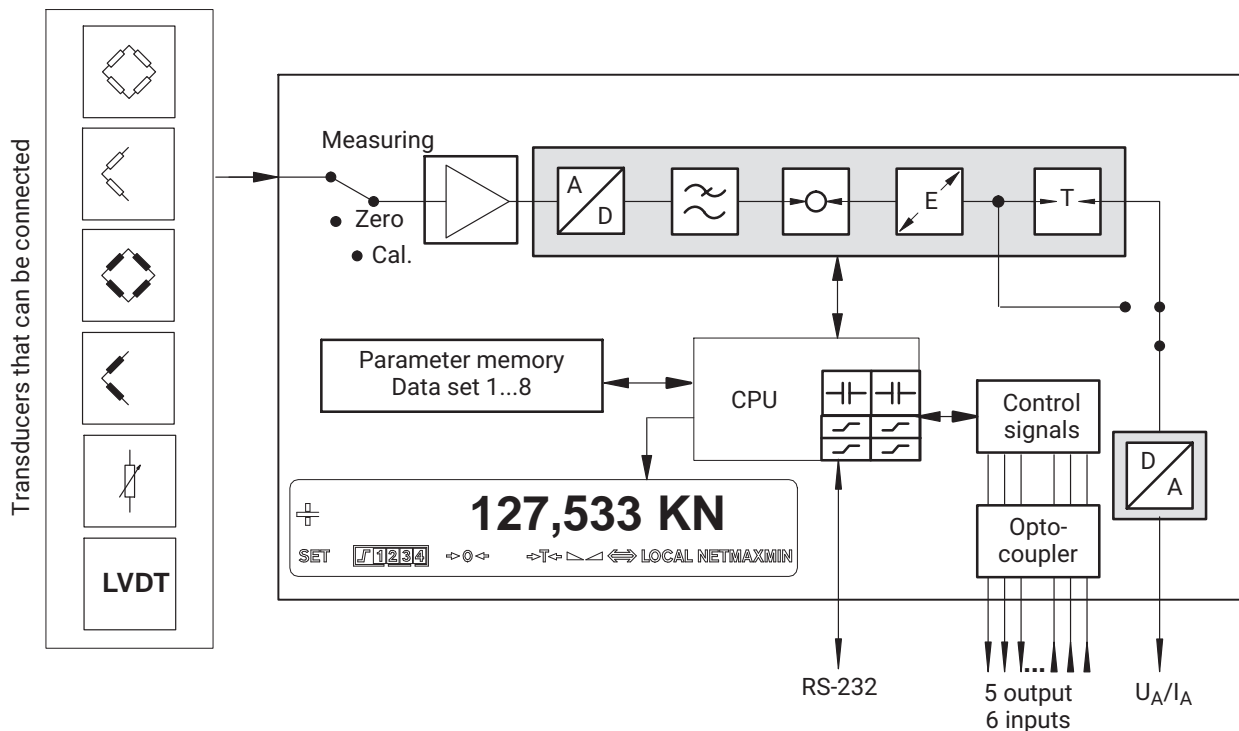
## Measuring amplifier for panel mounting

### SPECIAL FEATURES

- For process monitoring and industrial test bench engineering applications
- 4.8 kHz carrier frequency measuring amplifier for half and full bridge strain gage, inductive half and full bridge, LVDT, piezoresistive and potentiometric transducers
- Analog output (current/voltage)
- Four limit switches
- Peak-value memory (min., max., peak-to-peak)
- 6 digital inputs and 5 digital outputs including control functions
- Serial interface RS232 for measurement output and complete parameterization



### BLOCK DIAGRAM



# SPECIFICATIONS

Type		MVD2555				
<b>Accuracy class</b>		<b>0.1</b>				
<b>Mains connection/supply voltage</b>		115/230, +6%; -14%;				
		48 ... 60				
<b>Power consumption, max.</b>		8				
<b>Safety fuse (delayed-action)</b>		T 125 mA L (115 V) / T 63 mA L (230 V)				
<b>Amplifier</b>						
<b>Carrier frequency</b>		4800 ± 0.32				
<b>Bridge excitation voltage <math>U_B</math> (± 5%)</b>		1 or 2.5				
<b>Transducers that can be connected</b>		<b><math>U_B = 1 V_{rms}</math></b>		<b><math>U_B = 2.5 V_{rms}</math></b>		
SG half and full bridge		Ω		40 ... 5000		
Inductive half and full bridge, LVDTs		mH		6 ... 19		
<b>Permissible cable length between transducer and amplifier</b>		m		max. 500		
<b>Measurement frequency range, adjustable (-1 dB)</b>		0.05 ... 1000				
<b>Input level</b>		<b>low</b>		<b>medium</b>		<b>high</b>
Measuring range $U_B = 2.5 V$		mV/V		0.2 ... 4		2 ... 40
						20 ... 400
						50 ... 1000
Bridge balance range $U_B = 2.5 V$		mV/V		± 4		± 40
						± 400
						± 1000
Noise voltage <sup>1)</sup> 0...200 Hz		μV/V <sub>SS</sub>		0.5		1
						10
						1
						1
<b>Effect of 10 K change in ambient temperature<sup>1)</sup> (with/without autocalibration)</b>						
Sensitivity		%		0.04/0.1		0.04/0.1
Zero point		μV/V		0.2/2		2/20
						20/200
<b>Measurement frequency range</b>		<b>Nom. value fc</b>		<b>-1 dB</b>		<b>-3 dB</b>
Low pass with Butterworth characteristic		(Hz)		(Hz)		(Hz)
		1000		1010		1165
		500		485		580
		200		245		290
		80		78		98
		40		38		50
		20		19		26
		10		9.1		12.5
		5		4.6		6.3
				0.66		0.35
				1.1		0.7
				1.7		1.3
				4.3		3.8
				7.1		7.3
				12		14
				22		28
				41		56
						12
						12
						11
						10
						8
						7
						6
						5
Low pass with Bessel characteristic		<b>Nom. value fc</b>		<b>-1 dB</b>		<b>-3 dB</b>
		(Hz)		(Hz)		(Hz)
		900		900		1550
		400		400		750
		200		215		395
		100		111		190
		40		39		68
		20		21		37
		10		11		19
		5		5.3		9.7
				2.7		4.9
				4.8		7.5
				90		150
				180		300
				700		1200
				1400		2300
				2900		4700
						4.1
						2
						2
						2.5
						1.1
						1
						0.7
						0.3
						0
						0
						0
						0
						0
						0

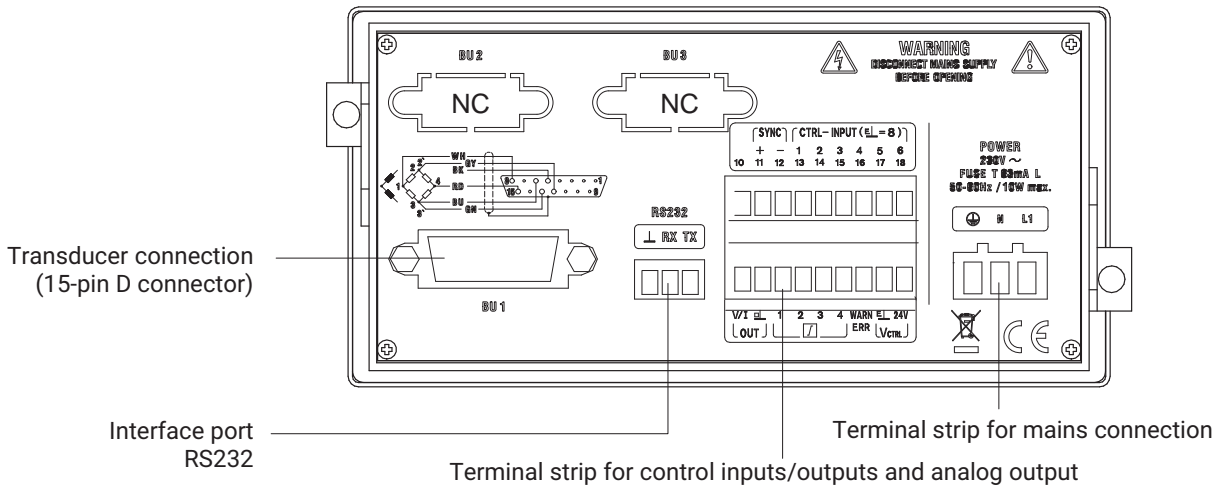
Type		MVD2555
<b>Max. permissible common-mode voltage</b>	V	±5 V
<b>Common-mode rejection</b>	dB	typ. 110
<b>Maximum differential voltage DC</b>	V	±10
<b>Non-linearity</b>	%	typ. 0.05
<b>Long-term drift over 48 hours</b> , measuring range 2 mV/V 30 minutes after start-up (warm-up time)	μV/V	with/without autocalibration <0.2 / <0.4
<b>Analog output</b>		
Applied voltage	V	± 10 V (unbalanced)
Permissible load resistance, min.	kOhm	5
Internal resistance, max.	ohms	1.5
Applied current	mA	± 20; 4 ... 20
Permissible load resistance, max.	ohms	400
Internal resistance, min.	kOhm	100
The analog output can illustrate gross, net, positive and negative peaks, and peak/peak values.		
<b>Interference voltage at output, typical</b>	mV <sub>SS</sub>	4
Residual carrier voltage 38.4 kHz	mV <sub>SS</sub>	3
Residual carrier voltage 4800 Hz	mV <sub>SS</sub>	2
<b>Long-term drift over 48 hours</b> (30 minutes after start-up)	mV	< 3
<b>Effect of 10 K change in ambient temperature</b> (additional effect to digital value)		
Zero point	mV	< 3
Sensitivity	%	< 0.05
<b>Limit switches</b>		
Number		4
Reference level	V	Gross, net, peak values
Reference voltage (independently adjustable)	V	-10 ... +10
Hysteresis factory setting	V	0.1
Adjustment accuracy	mV	0.33
Response time	ms	0.83
(all of the Butterworth filter frequencies and the Bessel filter >1.25 Hz. The values each double for the next lowest measurement frequency)		
<b>Peak-value memory</b>		
Number		2
Function		positive, negative, peak-to-peak
Update time	ms	0.03 (with Butterworth filter and Bessel filter > 100 Hz)
<b>Clearing peak-value memory</b>	ms	3.3 (control inputs)
<b>Retaining the current measured value/peak value</b>	ms	3.3 (control inputs)
<b>Time constant for envelope curves</b>	ms	100 ... 60,000 (± 6%)
<b>Control outputs (limit value of 1...4, warning V<sub>CTRL</sub>)</b>		
Nominal (rated) voltage, external power supply	V	5 24
Permissible supply voltage range	V	11 ... 30
Output current, max.	A	0.5
Short-circuit current, typ.	A	0.8
Short-circuit period		unlimited
Isolation voltage, without transients	V <sub>rms</sub>	< 60

Type		MVD2555
<b>Control inputs</b>		6
Input voltage range, LOW	V	0 ... 5
Input voltage range, HIGH	V	10 ... 24
Input current, typ., HIGH level = 24 V	mA	12
<b>Interface</b>		
Sample rate	Meas./s	approx. 25
ASCII output	Meas./s	approx. 50
Binary output		
Number of data bits	Bit	8
Baud rate	baud	300, 600, 1200, 2400, 4800, 9600 <sup>2)</sup>
Parity		uneven, straight <sup>2)</sup> and none
Stop bit		1 <sup>2)</sup> ; 2
<b>Parameter memory (EEPROM)</b>		8 (parameter sets)
<b>Display</b>		
Number of digits		± 10 (16 segments, plus various special characters)
Character height	mm	12.5
Type		LCD (inverse with LED background lighting)
<b>Keyboard</b>		Membrane keypad with 7 saved key elements on the printed circuit board
<b>Dialog language</b>		
Standard		German/English
On request		English/French
		English/Italian
		English/Spanish
<b>Effect of supply voltage when there are changes in the specified range, relating to the full scale value</b>		
on zero point	%	0.01
on sensitivity	%	0.01
<b>Nominal (rated) temperature range</b>	°C	-20 ... +45
<b>Operating temperature range</b>	°C	-20 ... +45
<b>Storage temperature range</b>	°C	-20 ... +70
<b>Degree of protection as per DIN IEC 60 529</b>		IP40 (complete device) IP51 (front, membrane keypad)
<b>Protection class</b>		I
<b>Dimensions, overall (W x H x D)</b>	mm	153 x 72 x 212 (220)
<b>Front panel frame dimensions</b>	mm	144 x 72
<b>Front panel display section (as per DIN 43 700)</b>	mm	138 x 68
<b>Weight, approx.</b>	kg	1

1) When  $U_B = 2.5$  V, in relation to the input

2) Default settings

## REAR OF THE DEVICE AND CONNECTIONS



## ACCESSORIES

15-pin Sub-D connector for transducers

Order no.: 1-CON-P1024

## SOFTWARE

The free "MVD-Scout-Assistant" software can be downloaded from the MVD website.

[https://www.hbm.com/de/2652/mvd2510-gleichspannungs-messverstaerker-fuer-den-schalttafeleinbau/?product\\_type\\_no=MVD2510](https://www.hbm.com/de/2652/mvd2510-gleichspannungs-messverstaerker-fuer-den-schalttafeleinbau/?product_type_no=MVD2510)

**Hottinger Brüel & Kjaer GmbH**

Im Tiefen See 45 · 64293 Darmstadt · Germany

Tel. +49 6151 803-0 · Fax +49 6151 803-9100

www.hbkworld.com · info@hbkworld.com

Subject to modifications. All product descriptions are for general information only. They are not to be understood as a guarantee of quality or durability.